characteristics of the underachievers and of the treatment procedures that tend to be associated with improvement.

Procedures.—All underachieving students (242) in a city high school are the sample for this study. Underachievers are defined as those students having at least a 2-decile discrepancy between mental ability and academic achievement as measured by grade-point average. The four treatments are individual counseling, group counseling focused on personal problems, group counseling focused on improvement of study skills, and a combination of individual and group counseling sessions. A fifth group of students will receive no counseling. Pre-, post-, and followup evaluation of pupils will consist of (*a*) grade-point averages, (*b*) Brown-Holtzman Survey of Study Habits and Attitudes, (*c*) Heston Personal Adjustment Inventory, (*d*) Minnesota Counseling Inventory, and (*e*) California Short-form Test of Mental Maturity. At the end of the experimental period, each student will also complete a questionnaire regarding his reactions to the interview situation and to the counselor. Tape recordings of the experimental treatment sessions will be obtained to ascertain the problems discussed by students, the roles played by the students, and the counselor's behavior in the treatment sessions. Each counselor will complete the counselor's form for a measure of his reaction to the treatment situation with each group of students. The analysis of the data will focus on changes in the students in the various treatment groups.

BETTY J. BOSDELL, counselor trainer, assistant professor of psychology, University of North Dakota, Grand Forks, N. Dak., and DARINE BROWN, guidance director, Central High School, Grand Forks, N. Dak.

Project 1263.
Duration: 1 year.
July 1961 to June 1962.
Federal contribution: $11,576.

Effects of Orientation in Testing on Motivation for and Outcome of Test Interpretation

Problem.—To investigate the effects of orientation to testing on (1) motivation of pupils for learning about themselves through the interpretation of test results, and (2) the effectiveness of test interpretation.

Objectives.—To determine to what extent (1) those students who participate in orientation to testing procedures prior to actual test administration show a greater motivation for learning about themselves than those who do not, (2) those students who participate in orientation to testing procedures prior to actual test administration show greater gains in self-understanding following test interpretation

than those who do not, and (3) those who are motivated to learn about themselves through test interpretation show greater gains in self-understanding following test interpretation than those who are not motivated to have their tests interpreted.

Procedures.—At least 200 students in each of grades 5, 7, 9, and 11 will serve as a sample for this study. Classes to serve as experimental and control groups will be selected at random from a number of schools. The experimental groups will participate in discussions of the tests in an attempt to determine and to answer the questions pupils have about taking tests and learning from test results. From this point, both groups will receive the same treatment. A self-rating form will be administered and students will be asked to check on a 5-point scale how accurate they believe this first self-rating to be. A battery of intelligence, interest, and achievement tests will be administered. The self-rating form will be administered for the second time immediately following the test battery. Students will be asked at this point whether (*a*) they wish to volunteer to have their tests interpreted, (*b*) they wish to think about it for a week, or (*c*) they do not wish to have their tests interpreted. After the students have indicated their preference, an attempt will be made to interpret the tests to all of the students. The self-rating scale will be completed a third time immediately following the test interpretations and again about 3 months after the interpretations.

MERLE M. OHLSEN, professor, College of Education, University of Illinois, Urbana.

Project 1344.
Duration: 1 year.
Sept. 1961 to Aug. 1962.
Federal contribution: $17,040.

Twenty Five-Year Followup of Educational Vocational Counseling

Problem.—In recent years much attention has been directed to the problem of conserving and developing the Nation's talented youth. Many studies and surveys have reviewed, analyzed, and recommended programs designed to provide the proper education and training for these young people. In most, if not all, programs, adequate counseling and guidance services have been cited as crucial. This study is a continuation and extension of the classic evaluation of counseling services performed by Williamson and Bordin in 1940.

Objective.—To locate all possible living matched pairs (one counseled and one not in each pair) of individuals involved in the study mentioned above, to obtain indices of their current occupational and social success and satisfaction, and to relate the current indices to cer-

tain data and judgments obtained for the same individuals in the early 1930's when they were beginning college students.

Procedures.—The sample will include, if possible, all survivors, approximately 690, from the original study. They will be interviewed and given a few psychological tests. On the basis of all data, indices of current success will be developed for each of the former students contacted. Statistical analysis will be made of comparisons of indices of achievement, success, and satisfaction, also a comparison of frequency of graduation and other events within various groupings of the sample. Also an attempt will be made to develop a composite criterion measure of occupational-social success based on the reciprocal averages technique.

To evaluate counselor judgments made in helping students come to educational vocational decisions 25 to 30 years ago against present-day standards, current student counseling bureau staff members will be given the original case data and, with no knowledge of previous ratings, they will be asked to judge the cases judged by staff members 25 years ago. Working from grade records in the registrar's files, the 1-year followup as reported in the original study will be replicated, using the time of termination of college work at or below the bachelor's degree as the point for judgment of counselor-client consensus and educational-vocational adjustment.

THEODORE VOLSKY, assistant professor of psychology, and DAVID P. CAMPBELL, assistant professor of psychology, University of Minnesota, Minneapolis.

Project 1346.
Duration: 2 years, 9 months.
Sept. 1961 to July 1963.
Federal contribution: $65,587.

Measured Interests and Vocational Success of Vocational High School Boys

Problem.—To determine whether the Minnesota Vocational Interest Inventory (MVII) can be used to predict occupational success in the skilled trades with a group of vocational high school boys.

Objective.—To determine both the concurrent and predictive validity of the MVII when used with vocational high school boys.

Procedures.—Selected groups of ninth-grade boys (e.g., students in mechanics, carpentry, and radio/TV repair curriculums) will take the MVII. Approximately 200 to 250 students will be needed in ninth grade in order to have adequate numbers for possible retesting in twelfth grade. The 1961 group of twelfth-grade boys will be tested

and compared with the ninth graders to determine age differences in scores. Although this project covers only the concurrent validity study, plans have been made to retest the current ninth graders in twelfth grade and follow up on their occupational status 2 to 3 years after graduation from high school. Coefficients of correlation and expectancy tabulations will be computed using MVII scores, school grades, and a pass-fail criterion.

W. L. Barnette, Jr., professor of psychology and director of the Vocational Counseling Center, University of Buffalo, Buffalo, N.Y.

Project 1350.
Duration: 18 months.
Oct. 1961 to Mar. 1963.
Federal contribution: $15,888.

Studies of the Effects of Systematic Variations of Certain Conditions Related to Learning

Problem.—To investigate the effects of systematic variations in task conditions on the learning performance of intellectually retarded, intellectually normal, and intellectually superior students; this study continues the work begun under Comparative Research Projects 470 and 695.

Objectives.—(1) To evaluate the effects on learning performance of systematic variations in task conditions (type of presentation, type of approach, level of complexity, and level of abstractness) and the influences on these effects of systematic variations of certain subject characteristics such as chronological age, mental age, and intelligence quotient.

Procedures.—The sample will consist of 256 students representing 8 different combinations of chronological age and mental age. These subjects will be administered tasks in which the characteristics of the materials and procedures will be specified by the several overlapping task conditions. These conditions will include (*a*) type of material presented (verbal and nonverbal), (*b*) type of response (discovery of the correct response and reaction to presented correct response), (*c*) level of learning (rote, concept formation, and problem solving), and (*d*) abstractness of the material (nonsense syllables, object level words, species-level words and genus-level words). The criterion measure will be the number of items which the subject completes successfully on tests after a specified number of trials of the task.

Kathryn A. Blake, assistant professor, College of Education, University of Georgia, Athens.

Project 1356.
Duration: 2 years, 10 months.
Sept. 1961 to June 1964.
Federal contribution: $38,855.

Development of Instruments for Eliciting and Evaluating Vocational Imagery

Problem.—A pilot study by the present investigator indicates that many ninth-grade students display immaturity in their use of vocational imagery. This research seeks to determine means of eliciting and evaluating genuine vocational imagery.

Objectives.—(1) To produce an instrument for eliciting vocational imagery for use in the educational-vocational orientation and counseling of high school youth, and (2) to develop a scale for evaluating the maturity of the vocational imagery elicited by the instrument.

Procedures.—A revised model of *What I Think About Myself* will be constructed on the basis of analysis of 281 protocols obtained in pilot studies. This instrument will be administered to several hundred students in selected New York City junior and senior high schools to procure protocols for further analysis. The effectiveness of this instrument will be assessed in terms of content criteria. Based on this analysis, a final model will be developed.

Pilot study protocols will be rated by selected judges in terms of the degree of vocational maturity evidenced and a tentative "maturity scale" will be developed inductively. This will be tried out on protocols and further refined. Representative protocols will then be extracted as tentative models for various degrees of maturity. Maturity assessments will be correlated with data obtained from students' cumulative records and with vocational choices manifested in declarations of plans to school counselors.

ROBERT HENDRY MATHEWSON, director, graduate training program in guidance and school counseling, City University of New York, New York.

Project 1368.
Duration: 1 year.
Sept. 1961 to Sept. 1962.
Federal contribution: $14,955.

Effects of Text Anxiety and Instructional Context on Problem Solving

Problem.—To explore the effects of text anxiety and instructional context on the problem-solving ability of college students.

Objective.—To determine the relationship between anxiety and problem-solving efficiency when evaluative instructions and instructions designed to foster playful exploration are used.

Procedures.—Three hundred male undergraduate college students in introductory psychology sections will be rated on the Sarason-

Mandler Text Anxiety Scale, and the upper and lower 10 percent of the distribution will be selected for study. Both the high- and low-anxiety subjects will be divided into three groups on the basis of three types of problem-solving instructions: evaluative, neutral, and playful exploration. The evaluative instructions will emphasize the scientific precision of the problem-solving apparatus and will claim that the design of the experiment is to compare Yale students with national norms. The neutral instructions will not attempt to place the problem-solving task in any context. Finally, instructions designed to elicit playful exploration will suggest that the problem-solving apparatus is a gadget that a few people around campus have just built and that they wish to determine whether it has any value. All subjects will be studied individually on the John-Rimoldi Problem-Solving apparatus and given the standard three problems. Through analysis of variance procedures, the effects and interactions of the degree of anxiety and the types of instructions on problem-solving efficiency will be studied. Efficiency in each of the three problems, as well as changes in efficiency over the series of three problems, will be studied. A similar analysis will be made of the relative degree of inefficiency within each of the phases of the problem-solving process in order to obtain fuller understanding of the specific effects that text anxiety has on the cognitive process.

SIDNEY J. BLATT, assistant professor, Department of Psychology, Yale University, New Haven, Conn.

Project 1382.
Duration: 1 year.
Sept. 1961 to Aug. 1962.
Federal contribution: $9,346.

Floundering and Trial After High School

Problem.—To investigate the sequential steps which constitute the process of choosing, entering, and settling down in a field of occupational endeavor, and their antecedent and concurrent variables.

Objective.—To ascertain the relationships between (1) the individual's psychological characteristics, (2) social environment, and (3) high school and college experiences and the amount of floundering and trial prior to the establishment in a regular adult occupation in the post high school and post college years. Floundering is defined as movement from one educational or vocational position to an unrelated position without adequate rationale and trial as temporary occupancy of, or movement to, educational or vocational positions in a meaningful sequence or with a rationale.

Procedures.—The subjects for this study will be selected from the 285 boys who began the eighth and ninth grades in Middletown, N.Y.,

in 1951–52. All locatable members of this group were followed up and thoroughly studied when the majority were in the twelfth grade and were followed up again by questionnaire when they were about 20 years old. All members of this group who can be located will be followed up in 1961–62 and 1962–63 at age 25. The antecedent and concurrent variables include vocational maturity, personal adjustment, social adjustment, socioeconomic status, and achievement and experience. The criterion variables include amount of educational and vocational floundering and trial during the post high school years, amount and type of education completed, occupational level at which employed, educational success, occupational success, career satisfaction, and fulfillment of promise. Data on these variables will be obtained through interviews, questionnaires, transcripts, employer ratings, and through interest, values, and personality inventories.

DONALD SUPER, Horace-Mann Lincoln Institute, Career Pattern Study, Teachers College, Columbia University, New York, N.Y.

Project 1393.
Duration: 3 years.
Sept. 1961 to Sept. 1964.
Federal contribution: $98,418.

Relationship of Group Counseling to Subsequent Academic Performances at the College Level

Problem.—To investigate the effects of group counseling on academic achievements.

Objectives.—To determine (1) whether group interaction leads to personal growth and attitude changes which will be reflected in a student's level of academic achievement, (2) whether different kinds of group interactions have differential effects on the nature and rate of change of academic achievement, and (3) whether the nature of verbal interaction is related to the degree of positive change.

Procedures.—One hundred and fifty freshmen college students enrolled in an integrated liberal arts program will be divided into groups of high and low achievers on the basis of class performance during the first 6 weeks of a semester. Students in each of these groups will be further assigned at random to 4 experimental subgroups: (*a*) a counseling group directed by an experienced group leader, (*b*) a counseling group directed by a school counselor experienced in individual therapy, (*c*) a control group involved in remedial study, and (*d*) a no-treatment control group. The counseling groups will meet twice weekly for a period of 8 weeks. Psychometric data will be gathered, using the Minnesota Multiphasic Personality Inventory, the Wechsler Adult Intelligence Scale, the Barrett Leonard Relationship Inventory,

a Q-sort, a sociogram, an attitude scale, and an autobiography. These data and academic achievement data will be gathered before and after counseling. Group interaction data will be obtained from tape recordings of all counseling sessions.

CARL R. ROGERS, professor, Departments of Psychology and Psychiatry, University of Wisconsin, Madison.

Project 1417.
Duration: 1 year.
Sept. 1961 to Aug. 1962.
Federal contribution: $7,796.

Training in Problem Solving

Problem.—This project is an extension of earlier research on problem solving, Cooperative Research Project 1015, which indicated that thinking processes are highly individualized performances, and that there is not a fixed relationship between the process followed and the answers reached. The present study seeks to discover the relationship of individual methods of problem solving to the results and the effect of training on this process.

Objectives.—(1) To characterize problem-solving processes of different individuals, and (2) to determine the effects of training on the subjects' approach to their problem-solving performance.

Procedures.—The sample will include 50 ninth graders and 50 college freshmen divided into experimental and control groups in which subjects are matched on the basis of age, IQ, and educational level.

A problem which has been developed at the Psychometric Laboratory will be administered to both experimental and control subjects. Then each experimental subject will take part in an individual training session every week, over a 6-month period, for a total of 20 to 24 sessions. Another problem will be administered to both experimental and control subjects at the end of the training period. A statistical comparison of the performances of experimental and control subjects will be carried out for each educational level; academic grades will also be compared.

In an effort to control attitudinal influences derived from the special attention given to the experimental subjects, a matched group of 10 subjects will be given a weekly lecture on techniques of problem solving. This group will receive the pre- and post-testing described above.

HORACIO J. A. RIMOLDI, director, Loyola Psychometric Laboratory, Loyola University, Chicago, Ill.

Project 1449.
Duration: 1 year, 2 months.
Oct. 1961 to Dec. 1962.
Federal contribution: $21,571.

RESEARCH ON:

V. Sociology of Education

Evaluation of a Program To Raise the Cultural, Educational, and Vocational Levels of Underprivileged Children

Problem.—To evaluate a program attempting to stimulate pupils from homes of low socioeconomic status to attain their maximum potential.

Objective.—To determine whether a planned program of identification, motivation, and cultural enrichment develops pupil potential any more effectively than the conventional instructional program.

Procedures.—This study is in two parts. The first phase involves an evaluation survey of about 10,000 elementary and junior high school pupils participating in the Higher Horizons Program. The second part will be an intensive experimental study of a sample of these pupils. For the latter study, random representative class samples from the current third and fourth grades and from the seventh and eighth grades will be selected from the participating experimental and control schools. In all, about 1,000 elementary and junior high school pupils will participate in the intensive study. The research will extend over a period of 3 years. Comprehensive batteries of tests and a variety of other appraisal measures will be scheduled periodically. Groups of matched pairs of pupils drawn from experimental and control schools will be formed for study and comparative analysis of performance and achievement. Where needed and appropriate, analyses of covariance will be applied. Experimental and control groups will be compared, utilizing quantitative and qualitative approaches to evaluate the effectiveness of the experimental program.

J. Wayne Wrightstone, director, and George Forlano, acting assistant director, Bureau of Educational Research, State Dept. of Ed., Albany.

Project 1124.
Duration: 3 years.
Jan. 1961 to Dec. 1963.
Federal contribution: $81,380.

Comparison Between the Reading, Writing, and Spelling Achievement of a Group of English and Scottish Children and American Children

Problem.—To assess the influence that differences in educational practices in England, Scotland, and the United States might have on reading, writing, and spelling achievement.

Objective.—To test the hypothesis that no significant differences will be found between the mean reading, writing, and spelling achievement scores of the English and Scottish samples on tests standardized in the United States and the achievement of American children as represented by the norms on these tests.

Procedures.—This study will be conducted in the County of West Lothian in Scotland, and in a comparable county educational authority in England. In each place the subjects will consist of approximately 500 children at ages 7, 11, and 14. The samples will be limited to children attending schools corresponding to the public schools of the United States and will be drawn randomly from a population yielding a normal distribution on British intelligence and attainment tests. The subjects at each age will be given the Paragraph Meaning and Word Meaning subtests of the appropriate battery of the Stanford Achievement Test and the Spelling subtest of the Metropolitan Achievement Tests. Additional tests will include measures of oral reading and of phonics. Measures of handwriting will include the Zaner-Blaser and Ayre's Handwriting Scales. Suitable tests of significance will be run between the mean reading, writing, and spelling achievement scores of the English and Scottish samples and the American norms on the tests involved. The data will be analyzed separately for each city by age, by test, and by sex.

IRVING ANDERSON, professor of education, and GERALDINE T. SCHOLL, assistant professor of education, University of Michigan, Ann Arbor.

Project 1163.
Duration: 1 year, 6 months.
July 1961 to Jan. 1963.
Federal contribution: $33,159.

Social Factors in Educational Achievement and Aspirations Among Negro Adolescents

Problem.—To study the educationally relevant behavior and attitudes of southern Negro children and their parents.

Objectives.—(1) To relate selected demographic and educational characteristics to educational performance in several southern States,

and (2) to determine the effect of various social factors on the educational aspirations of the Negro high school students in these States.

Procedures.—Using the county as the unit of analysis, data bearing on social and economic characteristics will be assembled from available sources. Negro and white students and parents will be considered separately for most purposes. Measures of current educational performance will be assembled on a county basis, using the records of State departments of education.

Counties will be selected from about four States in such a way as to maximize variation between counties in educational performance and rural-urban residence. Subjects in sampled counties will be Negro high school juniors and seniors. Questionnaires will be administered to approximately 10,000 students, and information will also be secured from a subsample of parents.

Standard statistical multivariate techniques will be used to analyze the demographic data. Major variables will be measured by Guttman-type scales. Much of the analysis will be concerned with comparing degrees of association among various subgroups to ascertain the factors affecting those relationships.

CHARLES E. BOWERMAN, research professor, and ERNEST Q. CAMPBELL, research associate, Institute for Research in Social Science, University of North Carolina, Chapel Hill.

Project 1168.
Duration: 4 years.
Sept. 1961 to Sept. 1965.
Federal contribution: $102,370.

Career Plans and Aspirations of 1961 College Graduates

Problem.—To provide national estimates of how many graduating seniors are planning to enter advanced study preparing for careers in medicine, biological sciences, engineering, college and university teaching, and the like.

Objectives.—(1) To provide information on factors which influence the choice to go on to advanced training in these fields, (2) to determine at what points in time such decisions are made, (3) to discover the influence of the prospects of financial support, such as scholarships and assistantships, (4) to ascertain which career lines are competing with each other, and (5) to examine such influences on career decisions as marital status, contact with undergraduate instructors, and the like.

Procedures.—A probability sample of 40,000 June 1961 graduates will be selected from 130 undergraduate colleges and universities, with an overrepresentation of those schools that send a large proportion of their graduating classes to advanced study. The sample size of 40,000

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is necessary to obtain a large enough group of students (estimated at 8,000) who will go on to advanced study to support an analysis of subgroups that are very small in number. Within each of the 130 undergraduate schools, the June 1961 graduates in schools of liberal arts, science, engineering, education, and possibly other fields will be systematically sampled with sampling ratios based on the size of the senior class. These seniors will be asked to answer a short questionnaire on (*a*) career plans and expectations, (*b*) academic achievement, (*c*) personal and social characteristics, (*d*) perceptions of institutional characteristics, and (*e*) occupational images and information. If desirable, special groups of students may be identified through the use of the questionnaire and interviewed personally in greater depth. The main variables will be tabulated by school and by type of advanced training desired.

PETER ROSSI, director, National Opinion Research Center, University of Chicago, Chicago, Ill.

Project 1194.
Duration: 1 year, 2 months.
Dec. 1960 to Jan. 1962.
Federal contribution: $135,401.

Educational Programs for Children of Migratory Agricultural Workers in Wisconsin

Problem.—To continue the work begun under Cooperative Research Project 674, which demonstrated the feasibility of predicting the arrival of migrant children at a specific place and time. This study will identify the educational needs of migrant children and seek to develop appropriate educational programs.

Objectives.—(1) To refine and replicate the project 674 prediction study, (2) to identify the educational needs of migrant children, (3) to develop appropriate methods and materials for use in short-term educational experiences, and (4) to assess the conditions which affect the establishment of classes for migrant children in local communities.

Procedures.—Crew leaders who have signed labor contracts for work in Wisconsin will be asked to provide the names, home schools, and other data on the children in the crews. This information will be used to replicate project 674 in predicting the time and place of the arrival of migrant children. To identify the educational needs of these children, instruments and observational procedures will be used to obtain measures of social skills and attitudes, self-concepts, and emotional development. New techniques, teaching arrangements, equipment and devices will be studied for possible adaptation to migrant education. Short-term programs developed in other connections will be reviewed also. In assessing conditions affecting the

establishment of classes for migrant children in local communities, an analysis will be made of demonstration classes for migrant children that have already been conducted. Data will be obtained on per-pupil costs, distances traveled by pupils to and from school, extent of local interest and participation, qualifications of teachers, and community resources.

HOWARD WAKEFIELD, associate professor of education, University of Wisconsin, Madison.

Project 1202.
Duration: 1 year.
July 1961 to June 1962.
Federal contribution: $12,765.

Social and Economic Characteristics of the College Population and Others With Some College Training

Problem.—Making use of the 1960 census data, to describe the social and economic characteristics of college students and others with some college training.

Objectives.—(1) To ascertain the personal characteristics of college students, the social strata from which they come, and the ways in which their education is financed, (2) to compare the post college experiences of persons who have completed a 4-year college with others who have had less than 4 years of college training, and (3) to attempt new projections of college enrollment.

Procedures.—Special tabulations from the 1960 population census will be obtained from the Census Bureau. On the basis of the census information several groups will be identified for analysis. Possible groupings include those not attending school at the time of the census who have completed one or more years of college, those at present enrolled in college, those who hold a bachelor's degree, and those with postgraduate work. Each of these groups will be cross-tabulated on many other items. For example, those attending college can be sorted by residence—in college dormitory, with parents, in own home (separate from parents), or in rooming house or other quasi-family household. Each of these groups, in turn, can be sorted by attendance at private or public school, and each of these by a whole host of personal characteristics, labor force and employment status, and family characteristics. A new set of projections of college enrollment to 1970 or 1975 will also be made.

A. J. JAFFE, director, Manpower and Population Program, Bureau of Applied Social Research, Low Memorial Library, Columbia University, New York, N.Y.

Project 1269.
Duration: 3 years, 6 months.
July 1961 to June 1962.
Federal contribution: $10,638.

Informal County Leadership Structure and Controls Affecting Educational Policy Decision-Making

Problem.—To explore the informal county leadership structure and controls which influence decisions on educational policies.

Objective.—To discover what important community forces affect the formulation of educational policy decisions in two selected school systems in which wide differences in financial support exist.

Procedures.—Two county school units in Florida will be selected for study in which the mean difference in social climate is less than one-fourth of one standard deviation but the difference in local financial effort is at least one-and-one-half standard deviations. An intensive analysis will be made of power factors presumed to account for some of the differences in financial effort. The behavior of power in a variety of other policy decisions in the selected countries will also be studied. The power attribution technique will be used to identify and determine the degree of power held by leaders in each county. Sociometric techniques and analyses of leader behavior on selected county-wide issues will be employed in identifying important patterns of interaction and exercise of power among leaders and other county officials. The issues-interview technique will be used for the identification of operational beliefs of influential leaders. Finally, a conservative-liberal scale will be administered to a sample of residents and leaders in the dominant informal power structure in each county. These data will provide a description of the basic elements of informal power control in each county. Statistical techniques will indicate interrelationships of these elements within each county and also between counties.

RALPH B. KIMBROUGH, associate professor of education, College of Education, University of Florida, Gainesville.

Project 1324.
Duration: 3 years.
Sept. 1961 to Sept. 1964.
Federal contribution: $54,490.

Factors Associated With the Academic Achievement of Adult Students

Problem.—To identify factors related to the academic achievement of adult students.

Objective.—To determine the relationships between certain measurable psychological variables (e.g., measures derived from interest and aptitude tests and biographical data) and the academic achievement of adult students.

Procedures.—About 7,000 students enrolling in University College (evening program) of Washington University will be asked to complete a biographical data blank which will be designed to provide information on the student's past academic history, employment history, family background, hobbies, interests, and aspirations. The biographical data will be related to academic longevity and grade-point average. In addition, two subsamples of 500 each will be selected for more intensive study. These students will be given a 3-hour battery of aptitude and interest tests, and they will be interviewed for approximately 2 hours to estimate motivation, depth of intellectual interest, and realism of goods. Academic achievement will be measured at the beginning of the semester and again at the end in a number of courses representative of the range of evening school offerings.

PHILIP H. DUBOIS, professor of psychology, Department of Psychology and University College, Washington University, St. Louis, Mo.

Project 1338.
Duration: 2 years, 6 months.
Sept. 1961 to Feb. 1964.
Federal contribution: $55,684.

Peer Group Maladjustment and Personality Development

Problem.—To explore the nature of peer-group maladjustment in childhood.

Objectives.—(1) To describe peer-group maladjustment in childhood, (2) to determine the incidence of such maladjustment, and (3) to explore a number of background factors presumed to be related to such maladjustment.

Procedures.—This study will be carried out in 4 parts. In the first part a minimum of 60 elementary schools will be selected, 30 each in Texas and in Minnesota; all of the students of grades 3, 4, 5, and 6 in each school will constitute the sample. Maladjustment will be identified by a combination of teachers' descriptions and sociometric procedures. A partially structured interview will be used with the teachers of the classes involved. It will include rating scales and key questions concerning the social adjustment of children in the class, with particular emphasis on the antagonizing and rejected children. After this information has been collected from the teachers, sociometric questionnaires will be administered to the students to obtain nominations of liked and disliked peers in each of the designated grades. In the second part, about 4,000 third-grade pupils in 20 of the 60 schools (10 each in Texas and in Minnesota) will be followed up by teachers' ratings and sociometric ratings for 3 years following the initial year to determine the stability of peer-group maladjustment.

Data on the genetic, socioeconomic, and general sociocultural factors in backgrounds of the children in this sample will be obtained in part 3 of this study. These data, obtained through interviews with parents, school and community people, and through school records, will be correlated with the measures of peer-group status over the entire sociometric range from strong acceptance to strong rejection. In the last part an intensive study of individual students will be made, using personality inventories, projective techniques, or some other form of personality assessment.

S. B. SELLS, professor of psychology, Texas Christian University, Fort Forth, Tex., and MERRILL ROFF, professor, Institute of Child Development and Welfare, University of Minnesota, Minneapolis.

Project 1351.
Duration: 5 years.
Sept. 1961 to Aug. 1966.
Federal contribution: $159,540.

Patterns of Mastery and Conflict Resolution at the Elementary School Level

Problem.—To investigate the question of how children utilize the opportunities for mastery in school and cope with intrinsic and environmentally generated conflicts when home and school environments are congruent or dissonant.

Objectives.—(1) To ascertain and describe patterns of mastery and conflict resolution in a group of 9-year-old children, and (2) to explore the relationships between such discernible patterns of mastery and conflict resolution and varying conditions of congruence and dissonance between home and school environments.

Procedures.—Data have already been gathered in a previous study on 105 9-year-old middle-class children. The types of data include scores on intelligence tests, achievement tests, problem-solving tests, projective techniques, sociometric devices, and other instruments. In addition, interviews were used to obtain data from the children's mothers, the children themselves, and their teachers. Also, observations were made of the children and teachers in classrooms. Both the child-rearing practices of the mothers and the educational philosophy of the schools have already been categorized along a modern-traditional continuum. The analysis of the data will describe the patterns of mastery and conflict resolution in relation to the types of home and school environment.

PATRICIA MINUCHIN, principal investigator, Bank Street College of Education, New York, N.Y.

Project 1401.
Duration: 2 years.
Dec. 1961 to Nov. 1963.
Federal contribution: $76,178.

The Teacher as an Agent of Sociocultural Change in a Technically Underdeveloped Society

Problem.—To define the range of influence of the Uzbek teacher (a term which includes educator-administrators) as an agent of sociocultural change in Soviet Uzbekistan.

Objectives.—To determine the role of the teacher in transmitting new values and in reinterpreting traditional culture.

Procedures.—In general, the method of attack is built around three major areas of research: historical-cultural, psychological, and sociological. Monographs, encyclopedias, statistical reports, and periodicals will be used to collect data on the cultural foundations, the educational history, and the teacher education programs of Uzbekistan. The psychological variables to be examined include the attitudes of social groups toward the teacher, overt expressions of support (e.g., special community events honoring the teacher), forms of teacher control, and forms of student reactions to the teacher. To gather these psychological data, interviews will be conducted with students, teachers, and community leaders, and a sampling of the mass media items will be examined. The sociological variables to be studied include the role of the teacher in the general society and the local community, the expectations of the teacher's role held by various professional and community groups, and the expectations that Uzbekistan parents have of education. Data on these variables will be obtained from interviews and from classroom observations.

WILLIAM K. MEDLIN, associate professor of education, University of Michigan, Ann Arbor, Mich.

Project 1414.
Duration: 3 years, 5 months.
Sept. 1961 to Jan. 1965.
Federal contribution: $99,085.

RESEARCH ON:

VI. Special Education

Experimental Teaching of Mathematical Logic to Talented Fifth and Sixth Graders

Problem.—To test, in elementary schools, research bearing upon the problem of children's development of deductive reasoning and grasp of principles of logical inference.

Objectives.—(1) To compare the achievement level in mathematical logic of fifth- and sixth-grade students with that of college students, and (2) to determine generalization and transfer of this learning to other branches of mathematics for the fifth- and sixth-grade students.

Procedures.—The sample will include experimental groups selected on the basis of ability; students of comparable ability from the same or similar districts will be selected for the control group. Textbook material has been developed experimentally in connection with a pilot class and will be used in all experimental classes. This book contains some explanatory material but is substantially a workbook of problems and exercises. In addition to achievement in the subject matter, general achievement tests will be given at the end of the first and second years.

Patrick Suppes, director, Institute for Mathematic Studies in the Social Sciences, Applied Mathematics and Statistics Laboratories, Stanford University, Stanford, Calif.

Project D–005.
Duration: 2 years, 2 months.
Aug. 1961 to Oct. 1963.
Federal contribution: $44,514.

Accelerated and Enriched Curriculum Programs for Academically Talented Mathematics Students

Problem.—To assess differential outcomes of various approaches to teaching mathematics to academically talented junior high school students.

Objectives.—To demonstrate that mathematical achievement is higher in a mathematics program of rapid sequential progress than

in programs which provide intermittent enrichment units even where these are of an advanced nature.

Procedures.—The sample will include about 30 seventh-grade classes (about 30 to 35 pupils per class), comparable with respect to intelligence (IQ 120 and above), reading and arithmetic achievement, and sixth-grade teacher rating of arithmetic competence. There will be about 5 classes in each of the following programs: school mathematics study group program, 7–9 normal; school mathematics study group program, accelerated; University of Illinois Committee on School Mathematics program; standard mathematics program (junior and senior high) accelerated; standard junior high program, enrichment units added; standard junior high program, as normally taught to bright pupils. Teachers of relatively equivalent preparation, experience, and interest in the project will be selected; they will be invited to choose the experimental program which they believe to be most effective. Inservice activities will be organized for the participating teachers where appropriate. The field test will be evaluated for the following: mathematical competence, ability to apply learning to unfamiliar mathematic problems, attitudes toward mathematics and related areas, teacher competencies.

A. HARRY PASSOW, professor of education and research associate, and MIRIAM L. GOLDBERG, associate professor of education and research associate, Horace Mann-Lincoln Institute of School Experimentation, Teachers College, Columbia University, New York, N.Y.

Project D–009.
Duration: 4 years, 3 months.
Oct. 1961 to Jan. 1966.
Federal contribution: $64,037.

Effectiveness and Feasibility of Early Admission to School for Mentally Advanced Children

Problem.—This study is concerned with a special case of acceleration: early admission to kindergarten.

Objective.—To determine the effects of early admission of highly intelligent children to kindergarten.

Procedures.—Psychologists will examine all children in the community of Warren, Pa., between the ages of 3 years and 9 months and 4 years and 8 months as of September 1, 1962, and will recommend a minimum of 12 to 25 children for early admission to kindergarten. The criteria for selection will include: IQ of 130 or above, social maturity a year or more above standard, sound and well developed personality, and physical characteristics not likely to limit the child. This same procedure for selecting children for early admission will be

carried on for each of 2 years so that a total of from 24 to 50 children will be involved.

Children in the early admission program will be compared with other children in terms of growth in academic skills, in social development, in emotional development, and in motor skills, as measured by periodic conventional teacher evaluations and augmented by additional group and individual standardized tests. The measures of the impact of the practice on the school system will be in terms of such factors as additional costs for instructional and ancillary services, changes in workloads of teachers and supervisors, participation of parents, changes in attitudes toward early admission on the part of educators, related professional workers, parents, and the total community, and modifications in the policies and practices of the school system as consequences of the project.

JACK W. BIRCH, chairman, Department of Special Education and Rehabilitation, University of Pittsburgh, Pittsburgh, Pa.

Project D–010.
Duration: 2 years, 7 months.
Nov. 1961 to July 1964.
Federal contributions: $49,715.

Effects of Automated and Nonautomated Responsive Environments on the Intellectual and Social Competence of Educable Mentally Retarded Children

Problem.—To examine the effects of placing familial retardates within a responsive environment, one that permits children to explore freely and make extensive use of their capacities for discovering relations, informs them immediately about the consequences of their actions, and is self-pacing in that events happen within the environment at a rate determined by the children themselves.

Objective.—To demonstrate that 5- and 6-year-old retardates can learn more rapidly than is normally considered to be possible and can acquire skills usually believed to be beyond them.

Procedures.—This project will be divided into two phases. In the first phase, a panel of experts will select approximately 10 familial educable retarded subjects between the ages of 5 and 7 for participation in a responsive environment. The performances of these children will be evaluated on the basis of selected standardized and informal tests given at the beginning and the end of phase one. In the second phase, approximately 120 children between the ages of 3 and 5, approximately 90 of them younger siblings of familial, retarded, school-age children and approximately 30 of them younger siblings of typical school-age children, will be divided into 2 experimental and 2 control groups. They will be placed in automated and nonautomated responsive environments. An evaluation of this phase will include an

analysis of more and less intensive environments when used with children from homes where familial mental retardation is clearly present as compared to a control group of children from similar families and another control group of children from families where there is no evidence of familial retardation. The 4 groups will be studied on the basis of such tests as the Peabody Picture Vocabulary, Stanford-Binet (1960), Illinois Test of Language Facility, and Vineland Social Maturity Scale, employing the statistical technique of multivariate analysis.

BURTON BLATT, professor of education and chairman of Special Education Department, Boston University, Boston, Mass.

Project D–014.
Duration: 3 years.
Sept. 1961 to Sept. 1964.
Federal contribution: $163,105.

Sex Differences in Achievement Motivation of Able High School Students

Problem.—To explore the educational achievement and motivation patterns of the able girls in the population.

Objective.—To obtain further longitudinal information on motivation variables found in an earlier cross-sectional study to be significantly related to academic achievement in high school. The investigator proposes to answer these questions: (1) Are there significant differences in achievement motivation scores between tenth and twelfth grades? (2) To what extent do marriage and career orientations account for these differences? (3) To what extent does sex-role identification account for these differences? (4) How much agreement is there between husband and wife on parental attitudes? (5) What is the relation of fathers' attitudes to achievement patterns of boys and girls? (6) Can a construct be developed to account for the family dynamics of achievement motivation attitudes? (7) Does a boy's attitude tend to shift in the conscious value placed on academic achievement between the tenth and twelfth grades? (8) How do these changes relate to the actual achievement of these boys?

Procedures.—Fifty boys and 50 girls, consisting of the younger group in an earlier study by the investigator, have been retested at the twelfth-grade level, the boys with Strodtbeck's and DeCharm's valuing achievement scales, the girls McClelland's *n* Achievement projective test. Fathers of these 100 students will be given the father's form of the Parental Attitudes Research Instrument. Girls have been found to behave differently from boys on McClelland's *n* Achievement test. This study will attempt to develop a more coherent account of the

development of motivation for education among girls by taking their adult role orientation into account. Mothers of high-achieving boys have been found to differ from mothers of high-achieving girls on authoritarian-control attitudes. Fathers' attitudes will be studied in an attempt to better understand parental role influence with regard to achievement. In addition, changes over a 2-year period will be studied on two variables for boys and one variable for girls. Differences in means and analysis of variance will be used in analyzing the data.

PAUL H. BOWMAN, associate professor, and JAMES V. PIERCE, instructor, Committee on Human Development, University of Chicago, Chicago, Ill.

Project 1097.
Duration: 1 year.
Dec. 1960 to Nov. 1961.
Federal contribution: $14,680.

Comparison of Two Approaches to the Use of Biographical Information of Talented Students Who Do and Do Not Achieve in High School Science Courses

Problem.—To discover and analyze significant differences in the life histories of students who do and do not achieve in high school science courses, and to develop biographical information blanks which will aid in the early discovery and encouragement of potential scientists.

Objectives.—To answer three major questions: (1) Do responses to biographical information blanks represent with reasonable validity the actual early experiences of the person who filled in the blank, or do they more nearly represent systematic distortions of those early experiences? (2) Does achievement or nonachievement in science courses among students depend on specific early experiences, or upon more general characteristics of the "climate" in which their early experiences took place? (3) What significant differences are there, in the early experiences of students who do and those who do not achieve in science courses, which can be reliably measured through use of a biographical information blank?

Procedures.—The research will be conducted in two phases. The first phase will be designed to determine the validity of responses to biographical items and to develop a Biographical Information Blank and a key for this blank measuring the "climate" of early experiences in general attitudes of parents. The second phase will explore the relationship of Biographical Information Blank responses to various measures of achievement in science courses and will include measures of both "content" and "process" in achievement in science.

In the first phase, the Biographical Information Blank (BIB) will be administered to approximately 200 public school students in a "double cross-validation" design splitting the students into groups of 100 each. A Parental Attitude Research Instrument (PARI) will then be administered to the parents of these 200 students. Responses of the students on the BIB which correlate with the various attitudes expressed by parents on the PARI will be determined with a measure of the extent to which manifest content of the items on the BIB corresponds to parental attitude correlates of the same items.

In the second phase, the BIB will be administered to students throughout the range of academic ability who have taken science courses. A double cross-validation technique will again be used with the 2 groups having a minimum size of 300 to 400. A variety of measures of achievement in science of these students will be used along with tests of ingenuity and creativity; interrelations among these measures will be determined and analyzed. BIB correlates of the various measures will be determined with two separate analyses made, one of achievement without regard to ability and one of achievement with ability controlled. Finally, an analysis of the BIB correlates of the various measures of achievement which do hold up under cross-validation will be used to determine whether any significant differences exist in the early experiences of those who do and those who do not achieve in science classes which can be reliably measured through the use of a biographical blank.

VICTOR B. CLINE, associate research professor, Department of Psychology, University of Utah, Salt Lake City.

Project 1107.
Duration: 1 year, 6 months.
Jan. 1961 to June 1962.
Federal contribution: $14,689.

The Social Relations of Mentally Handicapped Children in Regular and Special Public School Classes

Problem.—To revise the Syracuse Scales of Social Relations for use with lower chronological and mental age limits.

Objective.—To determine whether or not the social relations of mentally handicapped children can be measured by using a test format that is similar to the Syracuse Social Relations Scales.

Procedures.—The Syracuse Scales of Social Relations will be administered on an individual and a group basis to samples of third- and fourth-grade normal and mentally handicapped children. The scale format will be revised and the instrument will be administered to additional samples to determine the lower chronological and mental age limits for group and individual testing. This determination will

be based on an examiner report, on retest agreement, and on the concurrence of the Syracuse Scale descriptions with social and school evaluative data. The statistical independence of the four presently standardized social needs scales (succorance, achievement-recognition, playmirth, and deference) will be examined in terms of intrapupil correlations based on current standardization data and the testing of the younger retarded children. This examination may suggest the development of need situations more specifically appropriate for younger retarded pupils. If the revision of the scales is successful, the population of potential cities, towns, and rural communities will be identified for selecting a sample of 800 mentally handicapped youngsters for an extended study.

JOHN [illegible]NG, research associate, Bureau [illegible]hild Research, and NORRIS G. HARING, education director, Children's Rehabilitation Unit, University of Kansas, Lawrence.

Project 1182.
Duration: 1 year, 9 months.
Mar. 1961 to Nov. 1962.
Federal contribution: $37,536.

Development and Validation of a Process for Screening Emotionally Handicapped Children in School

Problem.—To validate instruments which have shown promise for effectively and economically determining teacher, peer, and self perceptions in the primary and elementary grade levels.

Objectives.—(1) To determine whether a screening process can effectively identify children with mild emotional handicaps, (2) to discover whether this screening process can be used by an entire school system, (3) to determine the reliability and validity of the screening instruments, (4) to determine whether the use of the "perceptual triad" (teacher, peer, and self) in the screening process will identify children with similar degrees of emotional problems, and (5) to determine the effectiveness of combined screening instruments in measuring change in the mental health of children.

Procedures.—Criterion groups of children on a continuum from poor mental health to good mental health will be established by combining the ratings of teachers who have been trained to rate children's mental health status and ratings of clinicians. The sample will include two criterion groups of about 150 pupils each at 2 grade levels selected from a total population of about 4,500 pupils. The teacher will give the screening materials to the entire class in which members of the criterion group are enrolled. After the screening materials are scored, the results will be compared with the mental health status scores, and equations will be formulated to predict the mental health

status of pupils from screening data. A comparison will be made between two groups of children: (*a*) those who have been through the screening process and have been identified by teachers and clinicians as having poor mental health, and (*b*) those who have been referred by teachers and parents. Children identified by teachers and clinicians as having poor mental health will be compared with children previously referred by teachers and parents in the population studied. This check will indicate how effective screening is, compared with the present method of mental health status identification by teachers and by parent referral.

NADINE M. LAMBERT, research consultant, California State Department of Education, Sacramento.

Project: 1186.
Duration: 1 year, 3 months.
Aug. 1961 to Nov. 1962.
Federal contribution: $61,352.

Speech Inaccuracy in Children as Related to Etiology

Problem.—To differentiate children whose speech inaccuracies are due to factors which are remediable from those whose speech problems are maturational and therefore likely to be self-corrected.

Objectives.—(1) To develop a visual and auditory form of an articulation test, and (2) to use the test to classify children on the basis of their patterns of articulatory inaccuracy.

Procedures.—In the visual form of the test, original pictures will be drawn which are unambiguous in subject matter to the point that children will apply to them only a single possible name. Two pictures will be drawn for each initial English consonant; the name of each picture when spoken will illustrate the speaker's ability to pronounce the initial consonant of the word evoked. An auditory form of the test will also be developed. Both forms of the test will be administered to 30 children at each level between the ages of 5 and 10. An articulation profile will be constructed for each child. Age-group profiles will be derived for each sound.

JOSEPH M. WEPMAN, professor of surgery and psychology, and director, Speech and Language Clinic, University of Chicago, Chicago, Ill.

Project 1198.
Duration: 2 years.
July 1961 to June 1963.
Federal contribution: $32,384.

Factors of Specific Set (Attensity) in Learning of Gifted Secondary Students

Problem.—To discover whether very specific attitudes (sets) represent an important learning mechanism used by gifted students.

Objectives.—(1) To determine whether the training of an experimental group on only part of a task results in significant learning on another part of the task, and (2) to discover whether the training of an experimental group on part of a task results in significant learning on the same part of the task by a control group that has had no training.

Procedures.—The sample for this study will consist of at least 60 gifted students chosen from suburban secondary schools in the vicinity of Baltimore, Md. Within classes, students will first be divided by sex, and then ranked on IQ. Successive IQ-pairs, within sexes, will have members assigned randomly to either the control or the experimental group. Initially all students will be given a pretest on States-of-origin of U.S. senators. This test will list 96 U.S. senators, and following each name 5 States will be shown. Then the control group will receive no further treatment until the final test. The experimental group will be given training on States-of-origin of 24 U.S. senators, 1 training session per week for 2 weeks. For training, slides will be presented briefly; the name of a senator will be exposed for one-tenth of a second, and then an opportunity will be given for students to write on an answer sheet the name of the senator's State. Finally, the name of the correct State will be shown for a tenth of a second. The 24 items in the training series will be given twice during each training session of about 40 minutes. Both groups will be tested the week after training is concluded, with a slightly modified test, in which party affiliations of senators must be indicated as well as States of origin. The posttest will be the same as the pretest except that students will be required to circle "R" or "D," signifying party. The scores of the control group on the material used to train the experimental group will be compared with the control group's scores to ascertain whether the materials used in training were communicated to the control subjects. The scores of the experimental group on the materials will be compared to ascertain the amount of set learning.

DORIS R. ENTWISLE, postdoctoral fellow in the Department of Education, Johns Hopkins University, Baltimore, Md.

Project 1203.
Duration: 6 months.
May 1961 to Oct. 1961.
Federal contribution: $870.

Comparison of Two Automated Teaching Procedures for Retarded Children

Problem.—To evaluate the usefulness of two automated teaching procedures for mentally retarded children.

Objective.—To compare the effectiveness of a semiautomated teaching procedure for teaching, spelling, and reading to retarded children with a similar fully automated procedure and with a standardized classroom procedure.

Procedures.—Two groups of 40 to 60 retardates in the age range from 10 to 20 years, matched as closely as possible on relevant variables, will comprise the experimental group. Subjects from public school classes and a residential training center will serve as a control group. A semiautomated and a fully automated program which are identical in essential word elements will be developed experimentally with nonsample subjects. The fully automated procedure involves machine-presentation and machine-reinforcement of the teaching programs. A correct response results in a machine signal; an incorrect answer receives a different signal. No reinforcement is required from an instructor. The semiautomated method requires the subject to manipulate a device on which correct responses are recorded. Visual reinforcement is provided by the written response and corresponding images. Verbal reinforcement is provided by an instructor. Comparison of the two techniques will be based upon achievement during equal time exposures.

LESLIE F. MALPASS, professor and chairman of the Behavioral Science Program, University of South Florida, Tampa.

Project 1267.
Duration: 2 years.
July 1961 to June 1963.
Federal contribution: $47,074.

Comprehension of Rapid Speech by the Blind

Problem.—This project is an extension of current research which seeks to determine the feasibility of the time compression techniques for increasing the rate of communication of spoken information.

Objectives.—(1) To determine the upper limit of speech compression at which useful comprehension is still obtainable, and (2) to formulate several training procedures for subsequent evaluation that can be used in training large groups of blind children and adults to approach the upper limit in the comprehension of compressed speech.

Procedures.—The research staff will listen to compressed speech under a variety of conditions that seem to be related to comprehension. They will manipulate such variables as the amount of experience in listening to compressed speech, schedules for increasing the rate of compressed speech, length of practice periods, problems posed

by complexity of material, testing for comprehension of material heard, and relation to the degree of compression employed. Then about six adults of college ability, some of whom are blind, will be trained to a high degree of compression on the basis of the experience of research personnel. When these adults have achieved what seems to be their upper limit in the comprehension of compressed speech, their experiences will be pooled with those of the research personnel in an attempt to formulate tentative training procedures to be field-tested with small groups of blind children.

The statistical anaylsis will include the recording of the trends of performance in training procedures. In addition, the field testing with small groups will use tests and correlational studies seeking *post hoc* findings to be formulated as specific testable hypotheses.

RAY H. BIXLER, professor and head, and EMERSON FOULKE, adjunct associate professor, Department of Psychology and Social Anthropology, University of Louisville, Ky.

Project No. 1370.
Duration: 2 years.
Sept. 1961 to Aug. 1963.
Federal contribution: $21,154.

New Methods of Language Development in Deaf Children

Problem.—To develop methods of helping deaf children acquire language earlier and at a more rapid rate than is possible with conventional methods.

Objectives.—To devise a more effective method of introducing language and simulating its development in deaf children than conventional methods used at present.

Procedures.—This study will be divided into two phases. Phase I will be devoted to the investigation of different adaptations of Moore's method of teaching language via the typewriter. The sample will include approximately 25 deaf children ranging in age from 3 to 8 years from the Kendall School and the Gallaudet Speech and Hearing Center. Children will be permitted to manipulate a modified electric typewriter in a permissive environment in which feedback of their efforts is provided. Pre- and post-assessment of each child's verbal skills will be made. Most of the data will be analyzed clinically. However, some data will be subjected to an analysis of variance.

The data from phase I will determine which method will be used for phase II. In this phase, 2 groups of 20 children each will be assigned to either the experimental or control condition. The children will be matched on several variables. Appropriate tests of significance will

be made of differences between experimental and control groups, and between pre- and post-measures on the experimental group.

HOWARD L. ROY, director, Counseling Center, professor of psychology, and JEROME D. SCHEIN, clinical psychologist and director, Office of Psychoeducational Research, Gallaudet College, Washington, D.C.

Project 1383.
Duration: 2 years.
Sept. 1961 to Aug. 1963.
Federal contribution: $24,276.

Factors Influencing Learning and Problem-Solving Behavior in the Mentally Retarded

Problem.—This project is concerned with a study of factors influencing learning and problem-solving behavior in the mentally retarded.

Objective.—To determine what conditions and experiences impede or improve the learning and problem-solving behavior of mental retardates.

Procedure.—The basic procedure will be to manipulate and control the intervening variables in certain learning and problem-solving situations. As an example, in some experiments intensity-brightness and peripheral characteristics will be deliberately emphasized in an effort to facilitate insight and certain problem-solving behavior. In other experiments, efforts will be made to minimize or eliminate the preoccupation with peripheral cues. Extensive use will be made of directive reinforcements. The design of all experiments will be such as to permit intergroup and intragroup comparisons, the study of intraproblem and interproblem variables, and the assessment of individual differences in performance. Multivariate factorially designed analyses of variance in which it is possible to treat such things as "time" and "error" data simultaneously will be used. The sample will include 2 main groups of mentally retarded subjects. One group will be composed of about 50 young people and adults at the Southern Colony and Training School at Union Grove, Wis.; the second group will be composed of about 50 children in primary special classes of the Madison and the Milwaukee public schools. The sample will vary from experiment to experiment.

KAI JENSEN, professor of education, University of Wisconsin, Madison.

Project 1440.
Duration: 5 years.
Sept. 1961 to Sept. 1966.
Federal contribution: $92,748.

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APPENDIX A

Investigators and Institutions Engaged in Cooperative Research Projects Contracted During Fiscal Year 1961

Investigator	*Institution*	*Page*
Alpert, Richard	Harvard University	28
Anderson, Irving	University of Michigan	62
Asher, J. William	University of Pittsburgh	11
Atkinson, John W	University of Michigan	40
Baker, Frank B	University of Wisconsin	23
Ball, Rachel Stutsman	Merrill-Palmer Institute	19
Barnette, W. L. (Jr.)	University of Buffalo	56
Beardslee, David C	Michigan State University	51
Beier, Ernst G	University of Utah	24
Birch, Jack W	University of Pittsburgh	72
Bixler, Ray	University of Louisville	80
Blake, Kathyrn A	University of Georgia	56
Blatt, Burton	Boston University	73
Blatt, Sidney J	Yale University	58
Bosdell, Betty J	University of North Dakota	53
Bowerman, Charles E	University of North Carolina	63
Bowin, William F	New York State Department of Education.	37
Bowman, Paul H	University of Chicago	74
Brittell, Robert W	University of Pittsburgh	11
Brown, Darine	University of North Dakota	52
Campbell, Ernest Q	University of Minnesota	63
Campbell, David P	University of North Carolina	55
Cattell, Raymond	University of Illinois	29
Cline, Victor B	University of Utah	75
Cohn, Benjamin	New York State Department of Education.	15
Cook, John O	North Carolina State College	39
Davis, Robert B	Syracuse University	30
deJung, John	University of Kansas	76
Deutsch, Martin	New York Medical College	31
DuBois, Philip H	Washington University	67
Dunsmoor, C. C	New York State Department of Education.	15
Entwisle, Doris R	Johns Hopkins University	78
Forlano, George	New York State Department of Education.	61
Foulke, Emerson	University of Louisville	80
Freedman, Alfred M	New York Medical College	31
Glaser, Robert	University of Pittsburgh	43
Goldberg, Miriam L	Teachers College, Columbia University.	71
Gow, J. Steele (Jr.)	University of Pittsburgh	43

Investigator	Institution	Page
Gribbons, Warren D	Clark University	52
Guilford, J. P	University of Southern California	27
Haring, Norris G	University of Kansas	76
Harshbarger, Boyd	Virginia Polytechnic Institute	16
Heil, Louis M	Brooklyn College	7
Hereford, Karl T	Michigan State University	14
Holzman, Albert G	University of Pittsburgh	12
Hunter, Woodward W	University of Michigan	49
Jaffe, A. J	Columbia University	65
James, H. Thomas	Stanford University	10
Jensen, Kai	University of Wisconsin	81
Johnson, Thomas	Washington University	20
Keislar, Evan R	University of California	48
Kent, Allen	Western Reserve University	22
Ketcham, Warren A	University of Michigan	41
Kimbrough, Ralph B	University of Florida	66
Klausmeier, Herbert J	University of Wisconsin	49
Kreitlow, Burton W	University of Wisconsin	12
Kuethe, James L	Johns Hopkins University	19
Lambert, Nadine M	California State Department of Education.	77
Lambert, Philip	University of Wisconsin	47
Lin, San-su C	Claflin University	42
Lippitt, Ronald	University of Michigan	36
Loban, Walter	University of California	32
Lumsdaine, Arthur A	University of California	45
Malpass, Leslie F	University of South Florida	79
Mathewson, Robert H	City College of New York	57
McCann, Lloyd	University of Arizona	14
McConnell, T. R	University of California	7, 26
McGuire, Carson	University of Texas	34
McNeil, John D.	University of California	48
Medlin, William K	University of Michigan	69
Medsker, Leland L	University of California	26
Minuchin, Patricia	Bank Street College of Education	68
Musmanno, Neal V	University of Pittsburgh	11
Oberholtzer, Kenneth E	Colorado State Department of Education.	34
O'Conner, Patricia Ann	University of Michigan	40
O'Dowd, Donald D	Michigan State University, Oakland	51
Ohlsen, Merle M	University of Illinois	54
Passow, A. Harry	Teachers College, Columbia University.	71
Pierce, James V	University of Chicago	74
Pinner, Frank A	Michigan State University	46
Pope, Saxton	University of California	27
Rimoldi, Horacio, J. A	Loyola University	60
Roff, Merrill	University of Minnesota	68
Rogers, Carl	University of Wisconsin	60
Rossi, Peter	University of Chicago	64
Rothney, John W. M	University of Wisconsin	50
Roy, Howard L	Gallaudet College	81

Investigator	Institution	Page
Schein, Jerome	Gallaudet College	81
Scholl, Geraldine T	University of Michigan	62
Sells, S. B	Texas Christian University	68
Smith, Louis M	Washington University	20
Soar, Robert S	University of South Carolina	8
Solomon, Herbert	Stanford University	25
Spaulding, Robert L	University of Illinois	44
Stake, Robert Earl	University of Nebraska	21
Stodola, Quentin C	North Dakota State University	21
Stott, Leland H	Merrill-Palmer Institute	19
Super, Donald	Columbia University	59
Suppes, Patrick	Stanford University	70
Sutton, Joseph T	Stetson University	44
Sweitzer, Robert E	Oklahoma State University	13
Terrell, Glenn	University of Colorado	17
Travers, Robert M. W	University of Utah	38
Tucker, Allan	Michigan State University	18
Turkes, W. R	University of Pittsburgh	12
Turner, Richard	Indiana University	9
Volsky, Theodore	University of Minnesota	55
Wakefield, Howard	University of Wisconsin	65
Wallach, Michael	Massachusetts Institute of Technology.	25
Wallen, Norman E	University of Utah	39
Wepman, Joseph M	University of Chicago	77
Wrightstone, J. Wayne	New York State Department of Education.	61
Zander, Alvin	University of Michigan	35

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APPENDIX B

Locations in Which Research Projects Were Initiated During Fiscal Year 1961

	Page
ARIZONA	
University of Arizona, Tucson	14
CALIFORNIA	
Stanford University, Stanford	10, 25, 70
State Department of Education, Sacramento	77
University of California, Berkeley	7, 26, 27, 32
University of California, Los Angeles	45, 48
University of Southern California, Los Angeles	27
COLORADO	
State Department of Education, Denver	34
University of Colorado, Boulder	17
CONNECTICUT	
Yale University, New Haven	58
DISTRICT OF COLUMBIA	
Gallaudet College, Washington	81
FLORIDA	
Stetson University, DeLand	44
University of Florida, Gainesville	66
University of South Florida, Tampa	79
GEORGIA	
University of Georgia, Athens	56
ILLINOIS	
Loyola University, Chicago	60
University of Chicago, Chicago	64, 74, 77
University of Illinois, Urbana	29, 44, 54
INDIANA	
Indiana University, Bloomington	9
KANSAS	
University of Kansas, Lawrence	76
KENTUCKY	
University of Louisville, Louisville	80
MARYLAND	
Johns Hopkins University, Baltimore	19, 78
MASSACHUSETTS	
Boston University, Boston	73
Clark University, Worcester	52
Harvard University, Cambridge	28
Massachusetts Institute of Technology, Cambridge	25
MICHIGAN	
Merrill-Palmer Institute, Detroit	19
Michigan State University, East Lansing	14, 18, 46
Michigan State University, Oakland	51
University of Michigan, Ann Arbor	35, 36, 40, 41, 49, 62, 69

	Page
MINNESOTA	
University of Minnesota, Minneapolis	55, 68
MISSOURI	
Washington University, St. Louis	20, 67
NEBRASKA	
University of Nebraska, Lincoln	21
NEW YORK	
Bank Street College of Education, New York	68
Brooklyn College, Brooklyn	7
City College of New York, New York	57
Columbia University, New York	59, 65, 71
New Medical College, New York	31
State Department of Education, Albany	15, 37, 61
Syracuse University, Syracuse	30
University of Buffalo, Buffalo	56
NORTH CAROLINA	
North Carolina State College, Raleigh	39
University of North Carolina, Chapel Hill	63
NORTH DAKOTA	
North Dakota State University, Fargo	21
University of North Dakota, Grand Forks	53
OHIO	
Western Reserve University, Cleveland	22
OKLAHOMA	
Oklahoma State University, Stillwater	13
PENNSYLVANIA	
University of Pittsburgh, Pittsburgh	11, 12, 43, 72
SOUTH CAROLINA	
Claflin University, Orangeburg	42
University of South Carolina, Columbia	8
TEXAS	
Texas Christian University, Fort Worth	68
University of Texas, Austin	34
UTAH	
University of Utah, Salt Lake City	24, 38, 39, 75
VIRGINIA	
Virginia Polytechnic Institute, Blacksburgh	16
WISCONSIN	
University of Wisconsin, Madison	12, 23, 47, 49, 50, 60, 65, 81

APPENDIX C

Numerical List of Projects

No.	*Title*	*Page*
1094	Educational, Vocational, and Social Performances of Counseled and Uncounseled Youth Ten Years After High School	50
1097	Sex Differences in Achievement Motivation of Able High School Students	74
1099	Visual and Auditory Efficiency and Its Relationship to Reading in Children	31
1107	A Comparison of Two Approaches to the Use of Biographical Information of Talented Students Who Do and Do Not Achieve in High School Science Courses	75
1124	Evaluation of a Program to Raise the Cultural, Educational, and Vocational Levels of Underprivileged Children	61
1131	Language Ability in Grades 7, 8, and 9	32
1132	A Study of Statistical Models for the Evaluation and Interpretation of Educational Criteria	16
1133	The Influence of Different Types of Public Institutions of Higher Learning on College Attendance of Students from Varying Socioeconomic and Ability Levels	7
1134	A Study of the Effectiveness of Beginning the Teaching of Reading in Kindergarten	34
1138	Prediction and Modification of Human Talent in Senior High Schools	34
1139	A Theory-Oriented Investigation of Nonintelligence Factors Associated with Scholastic Achievement	17
1142	Group Aspirations and Group Coping Behavior	35
1146	Factors Related to Attrition of Graduate Students at the Doctoral Level	18
1150	Development and Consistency of Student Images of Occupation	51
1153	Modifying the Self-Concept of Certain Prospective Teachers	7
1163	A Comparison Between the Reading, Writing, and Spelling Achievement of a Group of English and Scottish Children and American Children	62
1166	Evaluation of Infant and Preschool Mental Tests	19
1167	Pupil-Teacher Adjustment and Mutual Adaptation in Creating Classroom Learning Environment	36
1168	Social Factors in Educational Achievement and Aspirations Among Negro Adolescents	63
1170	Multivariate Statistical Procedures in Predicting Teacher-Pupil Classroom Behavior	8
1182	The Social Relations of Mentally Handicapped Children in Regular and Special Public School Classes	76
1186	The Development and Validation of a Process for Screening Emotionally Handicapped Children in School	77

No.	Title	Page
1193	Evaluation of the Madison Project Method of Teaching in Arithmetic Situations, Grades 4, 5, and 6	37
1194	Career Plans and Aspirations of 1961 College Graduates	64
1196	Study of Reinforcements in Classroom Learning	38
1198	Speech Inaccuracy in Children as Related to Etiology	77
1202	Educational Programs for Children of Migratory Agricultural Workers in Wisconsin	65
1203	Factors of Specific Set (Attensity) in Learning of Gifted Secondary Students	78
1217	Relationships Between Teacher Characteristics and Student Behavior	39
1218	Personality Traits Related to "Stress Tolerance" as Determinants of Academic Achievement	19
1221	Career Development	52
1226	Motive and Trait Correlates of Pupil Schema	20
1241	Interaction Between Wealth and Expenditures for Education in Selected States	10
1242	Studies in Guided Learning	39
1253	Sampling Distribution of Error Factors in Multidimensional Scaling	21
1262	Problem Solving Proficiency among Elementary School Teachers	9
1263	Evaluation of Counseling Treatments with Underachieving High School Students	53
1266	Administering a Listening Comprehension Test Through Use of Teacher-Readers, Sound Film and Tape Recordings	21
1267	Comparison of Two Automated Teaching Procedures for Retarded Children	79
1269	Social and Economic Characteristics of the College Population and Others with Some College Training	65
1275	The High Speed Computer as a Research and Operations Device in School Law	11
1283	Achievement-Related Motivation and Ability Grouping	40
1286	Dimensions of Children's Social and Psychological Development Related to School Achievement	41
1298	An Information Service of Educational Research Materials	22
1299	Empirical Determination of Sampling Distributions of Item Discrimination Indices and the Hoyt Reliability Coefficient	23
1308	Polygraphic Arousal Patterns Related to Attention and Learning in Groups	24
1316	Cognitive Originality, Physiognomic Sensitivity, and Defensiveness in Children	25
1318	Long-Term Study of the Educational Effectiveness of Newly Formed Centralized School Districts in Rural Areas: Part Two	12
1323	Optimal Scheduling in Educational Institutions	12
1324	Informal County Leadership Structure and Controls Affecting Educational Policy Decision-Making	66
1327	Item Analysis, Test, Design, and Classification	25
1328	Relationships Between the Characteristics and Backgrounds of High School Graduates and Their Subsequent Personal and Educational Development	26
1329	Role Expectations and Perceptions of School Principals	13

No.	Title	Page
1338	Factors Associated with the Academic Achievement of Adult Students	67
1339	Pattern Practice in the Teaching of Standard English to Students with a Non-Standard Dialect	42
1342	Structure of Intellect Abilities in Algebraic Thinking	27
1343	The Technology of Programed Instruction and Its Impact Upon an Educational System	43
1344	Effects of Orientation in Testing on Motivation for and Outcome of Test Interpretation	54
1346	Twenty-five Year Followup of Educational Vocational Counseling	55
1350	Measured Interests and Vocational Success of Vocational High School Boys	56
1351	Peer Group Maladjustment and Personality Development	68
1352	Achievement, Creativity, and Self-Concept Correlates of Teacher-Pupil Transactions in Elementary School Classrooms	44
1355	Dynamics of Personality Development in the College Years	27
1356	Studies of the Effects of Systematic Variations of Certain Conditions Related to Learning. Part III: Task Conditions	56
1359	Legal Problems in the Administration of Education by Educational and Non-Educational Government Agencies	14
1365	Individualizing Junior High School Mathematics Instruction	44
1368	Development of Instruments for Eliciting and Evaluating Vocational Imagery	57
1370	Comprehension of Rapid Speech by the Blind: Part II	80
1373	Program Development for Longitudinal and Cross-Sectional Research in Shaping Intellectually-linked Motives	28
1382	Effects of Text Anxiety and Instructional Context on Problem Solving	58
1383	New Methods of Language Development in Deaf Children	81
1391	Classroom Interaction, Pupil Achievement and Adjustment in Team Teaching as Compared with the Self-Contained Classroom	47
1393	Floundering and Trial After High School	59
1401	Patterns of Mastery and Conflict Resolution at the Elementary School Level	68
1402	Variables Differentiating Two Major Systems of Autoinstructional Programing	45
1411	General Relations of Changes of Interest and Personality to Changes of School Performance in Normal Children	29
1412	Relationships Between High School Group Structures and the Development of Orientations Toward Public Affairs	46
1413	Oral and Non-Oral Methods of Teaching Reading by an Autoinstructional Device	48
1414	The Teacher as an Agent of Sociocultural Change in a Technically Underdeveloped Society	69
1417	Relationship of Group Counseling to Subsequent Academic Performances at the College Level	60
1422	Pre-retirement Education for Hourly-rated Workers	49
1440	Factors Influencing Learning and Problem Solving Behavior in the Mentally Retarded	81

No.	Title	Page
1442	Strategies of Learning and Efficiency of Concept Attainment by Individuals and Groups	49
1443	Effect of School Building Environment on Personnel Interactions and Attitudes	14
1449	Training in Problem Solving	60
D-005	Experimental Teaching of Mathematical Logic to Talented Fifth and Sixth Graders	70
D-009	Accelerated and Enriched Curriculum Programs for Academically Talented Students—(Mathematics)	71
D-010	Effectiveness and Feasibility of Early Admission to School for Mentally Advanced Children	72
D-014	Effects of Automated and Nonautomated Responsive Environments on the Intellectual and Social Competence of Educable Mentally Retarded Children	73
D-022	A Modern Mathematics Program as It Pertains to the Interrelationship of Mathematical Content, Teaching Methods, and Classroom Atmosphere	30
D-040	The Effects of Group Counseling on School Adjustment of Underachieving Junior High School Boys Who Demonstrate Acting-Out Behavior	15

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